WELBORN SULLIVAN
MECK & TOOLEY, P.C.
ATTORNEYS AT LAW

1125 17th Street, Suite 2200
Denver, CO 80202
MAIN: 303/830-2500
FAX: 303/832-2366

159 N. Wolcott, Suite 220
Casper, WY 82601
MAIN: 307/234-6907
FAX: 307/234-6908

299 S. Main Street, Suite 2070
Salt Lake City, UT 84111
MAIN: 801/410-5111
FAX: 801/364-1030

M1007/0040
Wayne

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Div. of Oil, Gas & Mining

Division of Oil, Gas and Mining
Minerals Regulatory Program
Mr. Paul Baker, Environmental Manager
P.O. Box 145801
Salt Lake City, Utah 84114-5801

**Submitted Via Email:**
Mr. Paul Baker
paulbaker@utah.gov

Mr. Wayne Western
waynewestern@utah.gov

Mr. John Robinson, Jr.
Assistant Attorney General &
O'Hara Honors Fellow
Utah Office of the Attorney General
Natural Resources Division
jrobinson@utah.gov

**Re: Inadequate Impact Assessment for Proposed Bruin Point Mine, Carbon County, Utah, M007/0040**

Gentlemen:

I represent Hunt Consolidated, Inc. ("Hunt" or the "Company") in the Company's efforts to ensure the continued use and enjoyment of certain private property owned by Hunt, located in Carbon County, Utah. As you know, Green River Resources, Inc. ("GRR") and American Sands Energy Corp. ("ASE") (collectively, "ASE") have proposed a large-scale mine operation for tar sands extraction, processing and transport of production from so-called "Bruin Point," also located in Carbon County, Utah. According to ASE's Notice of Intention to Commence Large Mining Operations, identified as Permit No. M007/0040 ("NOI"), ASE intends to occupy portions of land owned by Hunt, to conduct surface operations, including constructing and

operating processing facilities and a tailings disposal impoundment that will be constructed and operated near Bruin Point. As proposed, the current location of the tailings disposal impoundment is at the head of the Range Creek drainage. In addition to one hundred percent (100%) of the surface acreage in and around Range Creek, including the proposed location of the tailings impoundment, Hunt owns approximately fifty thousand (50,000) acres in the surrounding Bruin Point area. Hunt's property extends to acreage historically known as the "Nutter Ranch," and to portions of Range Creek. Hunt operates a working ranch in the same area potentially affected by ASE's tar sands operation. In connection with ranch operations, the Company has made significant economic investments in the property, conducted extensive rangeland restoration and improvement and increased big game habitat and environmental conservation. As a property owner, Hunt likely will be impacted by the proposed tar sands operations.

Although Hunt does not oppose ASE's proposed tar sands mine *per se*, the tailings location, along with several other key components of ASE's mine plan, are particularly concerning. The risks associated with locating a tailing disposal impoundment containing residue of an undisclosed solvent from processing components that are potentially hazardous to human health and the environment, at the head of the Range Creek drainage, have not been sufficiently evaluated or mitigated. As such, these risks should be avoided, and ASE should be required to comply with regulatory guidelines intended to reduce such risk.

Hunt's review of the NOI shows that the materials submitted by ASE, the Operator, are inadequate with regard to "Impact Assessment" requirements of R647-4-109. The Rule states the Operator shall provide a narrative description "identifying potential surface and/or surface impacts." The description must include the following, "*at a minimum*:"

> 1. Projected impacts to surface and groundwater systems;
>
> 2. Potential impacts to state and federal threatened and endangered species or their critical habitats;
>
> 3. Projected impacts of the mining operation on existing soil resources;
>
> 4. Projected impacts of mining operations on slope stability, erosion control, air quality, and public health and safety;
>
> 5. Actions which are proposed to mitigate any of the above referenced impacts.

Utah Code Admin. R647-4-109(1)-(5). (emphasis added). Despite these requirements, the existing groundwater system has not been adequately defined; thus, the projected impacts and proposed actions to mitigate those impacts cannot be determined. In addition, there has not been any drilling by the Operator for the purpose of characterizing groundwater movement and recharge in the area that would be identified as the recharge area for North Spring. North Spring also is the proposed location for the tailing disposal impoundment. The Operator did drill one exploratory hole on the ridge above the proposed portal area, and reported encountering

groundwater at 400 to 420 feet, below ground surface. The only drilling information ASE included for the impoundment area was completed by Amoco in 1981. However, Amoco's 1981 drilling was conducted to better define the tar sands associated with the Sunnyside delta complex, *not* to gather information necessary to define, map and understand the shallow and deeper groundwater systems that feed North Springs and other springs and seeps in the area. Nevertheless, at least one study was conducted in order to find such hydrological information. According to a Geological Summary Report of Amoco's 1982 Exploration Program by consultant WM. S. Calkin ("Calkin 1983"), Golder Associates of Denver initiated hydrological studies and installed piezometer strings in several Amoco wells during 1981 and 1982. Despite existing hydrological studies, the Operator did not submit information related to the "Calkin 1983" study, nor did the Operator indicate that it attempted to locate the information that may have provided additional hydrological information. Instead, ASE submitted information obtained in drilling operations that were not conducted in order to find water or evidence of water.

Furthermore, the NOI essentially ignores groundwater existence and movement below the shallow (<100 feet below ground surface) fractured beds that feed the North Spring. The existence of springs or seeps on the cliff face below the old mine workings, and at points further down the Range Creek drainage, are direct evidence that water moves through fractures in the deeper tar sand and adjacent strata. The "Hydrology of North Spring and Bruin Point Utah," authored by URS, states that Amoco did not report encountering groundwater below the Parachute Creek Member in any of their 1980's drilling. This is not true. Groundwater was reported at 905 feet in the Douglas Creek Member (this is stratigraphically below the Parachute Creek Member) in Well No. 17, 50-70 gallons per minute artesian flow (*see* UGS, Open-File Report 566, 2010). This is direct evidence that groundwater exists below the shallow fractured zone.

In addition to the foregoing, from 1963 through 1966, Shell Oil Company attempted a steam-flooding project south of Bruin Point, about 800 feet east of the main communication building that was located in that place at the time, using six (6) steam injection holes. The tests were unsuccessful due to an extensive vertical fracturing system and the inability to inject steam into the rock matrix. (*See* Calkin 1983). This vertical fracture system has a fracture frequency of one fracture per four feet, with a direction EW to N70°W (Calkin 1983). Shell's work documented the existence of extensive fracturing in the target tar sands strata that does allow groundwater movement as demonstrated by Amoco's No. 17 Well encountering artesian flow at 905 feet, and seeps and the cliff face above and below the old mine workings.

Finally, the failure to map or define the potentiometric surface of the groundwater in the proposed tailings disposal impoundment does not allow for determination of projected impacts to surface and groundwater systems as required by R647-4-109. The existence of artesian conditions, even if seasonal, could allow groundwater to move upward into the tailings that contain residuals of a solvent with toxic and carcinogenic components, and compromise the integrity of the clay liner and long-term stability of the impoundment. In fact, the long-term

ability of the impoundment liner and drainage system to isolate and contain hazardous components from the waste landfilled in the impoundment has not been demonstrated.

Based on the foregoing, at least two important groundwater systems have not been adequately defined: (1) the shallow recharge area to North Spring, which is also the area where the proposed tailings disposal impoundment will be located; and (2) the deeper area that includes the tar sands and nearby strata that will be intercepted by the mine workings. Furthermore, in its 1981-1982 drilling programs, Amoco documented the existence of groundwater under artesian conditions in the proposed tailings disposal impoundment area at shallow depths (less that one hundred feet (<100')), and at deeper depths (greater than one hundred feet (>100')). This fact calls into question the long-term integrity of the proposed clay liner and the ability of the tailings disposal impoundment to effectively contain and isolate waste that will contain toxic and carcinogenic components, from the environment. Absent a better understanding of the groundwater systems through the seasons and the interaction between groundwater and surface water, projected impacts to surface and groundwater systems cannot be determined. Consequently, actions to mitigate those impacts cannot be determined, as required by law. The proximity of the operations and facilities to the headwaters of Range Creek, combined with unknown groundwater conditions and inadequate protective measures from the Operator, present an unacceptably high risk of adverse impact from the operations to the surrounding environment at the proposed location.

Thank you for your time and consideration of the matters addressed in this letter. Hunt remains committed to responsible stewardship and development of its property and resources. Hunt values the regulatory protections afforded to operators and property owners by the standards governing mining operations, and by the individuals and agencies that administer them. Please do not hesitate to contact me if you have any questions, or if I can provide additional information.

Very truly yours,

WELBORN SULLIVAN MECK & TOOLEY, P.C.

Kelly A. Williams

cc: Mr. John Baza, Director, DOGM
Mr. Walt Baker, Director, DWQ
Mr. Dan Hall, DWQ
Mr. Mark Novak, DWQ
Mr. David Hernandez, V.P. & General Counsel, Hunt Consolidated, Inc.
Mr. Todd Watson,V.P., Hunt Realty